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LINKS: *Minority Research & Training*

NIA Lab Internship Jumpstarts Student's Interest in Research

Garrett Mouse, a 20-year-old junior attending the University of Central Oklahoma in Edmond, wants to make a contribution to the Cherokee Nation's health like the native doctors made when the Indian Health Service treated him in childhood. The nine-week summer internship that he just completed in a National Institute on Aging (NIA) lab will give him a big head start whether he decides to become a doctor, a physical therapist, or a medical researcher, he said.

Garrett Mouse

"I had never been involved in a lab, so I expected everyone to be quiet and to keep to themselves. But everyone was active and helpful," Mouse said of the Laboratory of Neurogenetics in NIA's Intramural Program. "I learned about Alzheimer's disease (AD) and about recognizing the APP protein which is characteristic of AD. I spent the summer learning lab techniques like the Western Blot test. The lab staff was a very diverse group with people from China and Japan."

Mouse describes John Hardy, Ph.D., lab chief, and Huaibin Cai, Ph.D., his mentor, as brilliant and dedicated. "They come into work at eight in the morning and work until eight at night. They see a purpose in their work. A lot of the time I felt like I was on information overload."

While Mouse learned some unexpected things about the lab, the lab researchers learned some unexpected things about Mouse. When some of the researchers who experiment with mice saw Garrett Mouse's name, they thought they'd tease "the little guy." But then Mouse, all 6'5" of him, showed up and that plan was quickly scrapped.

Mouse participated in the NIA summer intern program through the Washington Internships for Native Students (WINS), which places native students throughout the Federal Government. American University (AU) operates the 12-year-old, year-round program, which placed four summer interns at NIH. In addition to spending 40 hours a week in the lab, Mouse also took an evening course in Indian policy at AU, earning a total of 6 college credits.

"I made so many friends, especially among other people in the WINS program. I got to meet Dave Anderson, the assistant secretary of the Bureau of Indian Affairs," Mouse said. "It's a great program for native college students from the junior level all the way through graduate school." In 2004, WINS sponsored 77 students. Mouse's younger brother, a high school junior interested in science, might also participate in the program in a few years, he said.

"I like Washington, D.C., because there are so many things to do, but it's exhausting after a while. Everything is so fast-paced," Mouse said. The first thing he'll do when he returns to Tahlequah, the capital of the Cherokee Nation of Oklahoma, is to "get a big steak and drive my truck," a big red Chevy. "I have a month off until school starts on August 23, so I'll probably make some money hauling hay or mowing lawns."

Mouse said he wants to return to the NIA next summer to continue learning about research. "Working in the lab has made my interest in science grow even more," Mouse said. ❖

IN THIS *Issue*

Unique Field Study Examines Race and Poverty's Impact on Health Using Medical Research Vehicles

When Michele Evans, M.D., was in medical school, she had no idea she would eventually custom design a semi-truck for a field research project at the National Institute on Aging.

"The NIH (National Institutes of Health) provides opportunities to be well-rounded because you don't know what turns your career will take. It's nice to have skills, and as you build your talents, you show the diversity of your intellect," said Evans, Deputy Scientific Director of NIA's Intramural Research Program (IRP). Evans is also Chief of NIA's Health Disparities Research Section, a board-certified internist, and medical oncologist.

Michele Evans, M.D., receives an award for her work on HANDLS from Elias A. Zerhouni, M.D., Director of the National Institutes of Health.

Evans' many skills have been called into play as the Principal Investigator of the Healthy Aging in Nationally Diverse Longitudinal Samples (HANDLS) study. This unique field study examines race's and poverty's impact on physical, genetic, demographic, psychosocial and psycho-physiological health indicators over 20 years. In July 2004, Evans was awarded the prestigious NIH Director's Award for her work on HANDLS.

"I received the award, but it really belongs to everyone on the HANDLS staff," Evans said after the award ceremony. "The staff reevaluated and redesigned the study, so it is epidemiologically relevant in Baltimore."

Almost 4 years of preparation and pilot studies will pay off this fall when the two huge Mobile Research Vehicles (MRVs) begin motoring to west Baltimore communities to recruit the first participants to HANDLS.

"We want to be part of the neighborhood. Our hypothesis is that a community-based outreach effort with close and continuous follow up will improve recruitment and retention of participants. The study will include blacks and whites who have low socioeconomic status," Evans said.

The idea for HANDLS sprang from intramural staff concern that the Baltimore Longitudinal Study on Aging (BLSA) inadequately represented Baltimore's population. The BLSA, begun in 1958, is America's longest-running scientific study of human aging. BLSA scientists study 1,400 men and women ranging in age from 20 to 90 to learn what happens as people age and how to sort out changes that are the result of aging from those due to disease or other causes.

"My colleague Alan Zonderman argued that if you couldn't get minorities and poor people to come to the BLSA, perhaps the BLSA could go to them," Evans said. Alan Zonderman, Ph.D., is the Senior Investigator and Chief, Cognition Section of the NIA's Intramural Laboratory of Personality and Cognition. The Gerontology Research Center petitioned for and received $350,000 from the NIH discretionary budget to build the mobile research truck.

The HANDLS project received early support from Raynard S. Kington, M.D., Ph.D., who is now the NIH deputy director. Kington, who studied culture's influence on aging at the U.S. Centers for Disease Control and Prevention, argued that HANDLS was distinct from the BLSA and should specifically study the interaction between health, race, and socioeconomics. Data gathered for HANDLS will not correspond "one-to-one with the BLSA", but it will be similar enough to compare measures across studies, Evans noted.

Inside the 47-foot, customized semi-trailers are 3 working areas: an exam room and blood donor station, a cardiovascular fitness and muscle strength testing area, and a bone density/body composition and vascular studies testing area. HANDLS will place special emphasis on cardiovascular disease, cerebrovascular disease such as stroke, age-associated changes in cognition, strength and physical functioning, and body composition, as well as other areas in which health disparities have been identified. The state-of-the-art vehicles will be used in conjunction with community centers or other facilities, where administrative activities of the

study and other research, such as cognitive and neuropsychological testing, can be done.

From October 2000 to November 2003, HANDLS researchers conducted two pilot studies to help streamline logistics, evaluate retention strategies for non-traditional research participants, conduct interim follow-up on participants, and evaluate new questionnaires and physical assessments to be used in the epidemiological study. On August 17, 2004, researchers conducted a dress rehearsal for recruitment of real participants.

"HANDLS is high risk research that you couldn't do elsewhere because it requires stable funding. NIH has provided adequate funding and allowed me to think about how to do this field project," Evans said. "We hope that the recruitment strategy, if successful, will serve as a model for development in other studies that require an ethnically and socioeconomically diverse group of participants."

Varied Career Choices

Evans' career choices have been driven by the desire to reduce the disproportionate disease and death experienced by minorities due to cancer and by the lessons she learned growing up in a Brooklyn housing project, she said.

"My father paid a surcharge for us to live in the projects in Brooklyn even though we could have lived elsewhere. My parents wanted us to have a contextual understanding of our responsibilities and what it means to be a minority in this country. They made sure that I understood that shopping at Bloomingdales and having a summer home like my family was not how it is for most people. My family is highly educated, and we were raised to be aware of what's going on around us."

Evans wanted to train as an OB/GYN oncologist when she reached her senior year in medical school at the University of Medicine and Dentistry of New Jersey and the Robert Wood Johnson Medical School in Piscataway. But Jack Gardner, Dean of Students at the Emory University School of Medicine and Evans' mentor, advised her that internal medicine would be a better platform from which to build her career. Evans received her postgraduate training in internal medicine at an NIH-funded clinical research unit at Emory University.

Following the rotation, Evans worked 2 years for the National Health Service Corps as part of the medical school repayment program. She treated low-income Hispanics, African Americans, and Haitians at a freestanding medical clinic that was a converted health manpower facility and at the St. Mary's projects located between the Bedford-Stuyvesant and Brownville neighborhoods.

"I was thinking about not applying for fellowships and just doing primary care because I saw all this need. But the people from Emory called and urged me to apply for fellowships in basic and clinical research," she said. In 1984, Evans accepted a medical oncology fellowship at the National Cancer Institute (NCI) Clinical Oncology Program. At the NCI, she focused on the role of DNA repair in cancer susceptibility, eventually becoming a Senior Clinical Investigator.

"It was a difficult choice. I went from treating patients in medical clinics to the NCI Laboratory of Molecular Pharmacology. At first I missed the interaction with patients a lot, but eventually I enjoyed working in the lab. If you are really interested in research, you need to understand basic science," she said.

At NIH, Evans encountered the culture of science and learned that Ph.D.s think differently. "They view problems more technically and do research for the sake of gaining pure knowledge. That's the benefit of having M.D.s working side by side with Ph.D.s. It helps keep the human face in the lab. That's why NIH is the National Institutes of Health, not the National Institutes of Science," Evans said.

Evans knew she didn't want to be a "lab rat" but wasn't completely clear what was waiting around the next bend in the road. At that point, Dr. Samuel Broder, then NCI director, recruited Evans as a Special Assistant on cancer among minorities and underserved populations. Evans traveled across the country, and learned how to do research administration, personnel, and budgets.

"It was a very useful experience. I didn't want to go completely dry, so I went back to the lab after 2 years. For 7 years, she worked as Senior Clinical Investigator in the National Institute on Aging's Laboratory of Molecular Genetics. Eventually Evans made the decision to finish her projects and move back to New York.

But Daniel L. Longo, M.D., then the newly appointed Scientific Director of the NIA's Intramural Program, wouldn't let her go. He recruited her to the position of Deputy Scientific Director in 1997. At

(continued on page 7)

Summer Institute 2004

Prescription Pain Medications Are Hard To Find In Pharmacies Serving Minority Neighborhoods

Michigan pharmacies serving minority neighborhoods were only half as likely as pharmacies in mostly white neighborhoods to stock many prescription pain medications, according to a 2004 study by Carmen R. Green, M.D.,* the University of Michigan pain specialist and alumni of the National Institute on Aging's Summer Institute on Aging Research.

Carmen R. Green, M.D.

Only half of the pharmacies in non-white areas that were surveyed by a University of Michigan team had even a scant supply of the kinds of drugs used to treat severe chronic pain, such as back and joint aches. That's much lower than the percentage of pharmacies in mostly white areas, where more than 90 percent of pharmacies had the drugs in stock.

Overall, retail chain pharmacies were less likely than independent pharmacies to carry a sufficient stock of the drugs, known as opioid painkillers. And pharmacies in wealthier ZIP codes of any racial makeup tended to have a better supply.

While the researchers didn't delve deeply into the reasons behind the discrepancies they found, previous research has suggested that pharmacies in poorer or higher-crime areas do not stock opioid drugs because of the real or perceived threat of robbery. In addition to their medically useful painkilling properties, many of the drugs have a street value.

The new results echo findings from New York City that were published by a Columbia University team several years ago. But the U-M authors note that their survey covered an entire state, and looked at more drugs -- a total of 15, in three categories. If a pharmacy had even one bottle of one drug from each category, it was considered to have an adequate supply.

Half of the pharmacies were in ZIP codes whose population was more than 70 percent non-white, and the other half were randomly sampled from ZIP codes around the state whose populations were more than 70 percent white.

"The key thing we found is that there are differences in availability of medications. If you are a person living in Detroit and you can't walk to the store to get the medications you need to reduce your pain and help you function, this can be a big problem," Green says.

Green launched the study after hearing from a patient who couldn't find a pharmacy in her mostly African-American neighborhood where she could fill a prescription that Green had given her to treat chronic pain. She had to go to a pharmacy in the suburbs to get the pain medication prescription filled.

Green sees patients with all types of pain at the U-M Center for Interventional Pain Medicine and studies issues affecting them as head of the Michigan Pain Outcomes Study Team. An associate professor of anesthesiology at the U-M Medical School, she has specialized in studying topics relating to race, age, and chronic pain, and chairs the American Pain Society's special interest group on Pain and Disparities in Pain Management.

The study used data from the 2000 Census, including race, median age, and median income by ZIP code. While the researchers did not find an influence on medication availability based on median age, the association with race was strong – and there was an interaction between race and income when both variables were considered together.

Green's team telephoned the 190 pharmacies and asked them about their stocks of medications in three categories: long-acting opioid painkillers, short-acting ones, and combination products that include an opioid and a non-opioid drug.

Pharmacies had to have at least one drug from each category to be considered as having an adequate supply, though Green notes that it would be better to have several choices in order to fill a doctor's exact orders. In all, 71 percent of the pharmacies had an adequate supply of opioids using this definition.

Examples of long-acting opioids include controlled-release oxycodone, often sold as Oxycontin, and controlled-release morphine. Short-acting opioids

include meperidine (sold as Demerol), hydromorphone (sold as Dilaudid) and immediate-release oxycodone. And combination products included hydrocodone/acetaminophen (sold as Vicodin and Lorcet), and acetaminophen/oxycodone (known as Percocet or Tylox).

"All of these medications, when used appropriately, have tremendous potential to help patients overcome chronic pain that interferes with their ability to work and carry out daily activities," says Green. "But they also carry an addictive and high-inducing potential that makes them attractive on the black market. While we can't say that fear of theft is behind the discrepancy in availability, we know that some of the pharmacists we spoke with admitted this was a factor. However, most pharmacists surveyed said they didn't get much demand for these medicines, which suggests that we need to look at prescription patterns and other factors."

When the researchers looked at individual medications, significant differences between pharmacies in white and non-white areas arose in four of the five long-acting opioids, all five of the short-acting opioids, and two of the five combination products.

When they looked at median income combined with race, there was an interaction between the two factors. The median income for all the ZIP codes surveyed was $39,322. Among pharmacies in areas below that median, pharmacies in minority ZIP codes were about 16 times less likely to have a sufficient opioid supply than those in white ZIP codes. But among all ZIP codes with a median income at or above that amount, pharmacies in minority ZIP codes were only 4.6 times less likely to have a sufficient opioid supply. However, Green cautions, the sample size is too small to draw many conclusions about this interaction. "We need to examine this issue further," she explains.

"The bottom line is, if a pharmacy doesn't stock a certain medication, a person in pain may end up in a situation where their physician will prescribe pain medication, but the patient can't get the prescription filled," Green concludes. "Given the incredible impact on daily function, quality of life, and economic output that chronic pain can have, this is a crucial issue for physicians and health care providers to be sensitive to when treating patients who live in areas with large minority populations."

In July, Green won a Mayday Pain & Society Fellowship. The three-year fellowship was established by the Mayday Fund to provide new leaders in the pain management field with tools that will enable them to reach the broader public.

In addition to Green, the study was conducted by Carla Talarico, Tamika Washington, and S. Khady Ndao-Brumblay. Three members of the team, Andrea Black, Cecelia Calhoun, and Kyungmin Kang, participate in the U-M's Undergraduate Research Opportunity Program. ❖

By Kara Gavin, University of Michigan

Unique Field Study (continued from page 3)

NIA, her major research interest has centered on the clinical implications of eukaryotic DNA repair in cancer pathogenesis and aging.

"Dr. Evans is doing a great job administering HANDLS, which is a high priority at the IRP," said Longo. "Dr. Evans is incredibly unique in her ability to function as the head of a molecular biology research lab, a clinical researcher, an administrator, and a mother. She achieves at the highest level in all areas of her life."

"You can plan your career to a certain degree, but you have to go with the flow and let it evolve," Evans said. "People lay out a linear progression and those who are very disciplined, lucky, or smart can make it happen. But that's not true for those of us who are just regular people and want to go to the movies once in a while." Evans found time to fall in love, marry a fellow scientist at NIH, and have a daughter who is now 8-years-old. Evans co-leads her daughter's Girl Scout troop, oversees swim meets, and volunteers at Sunday school.

"NIH provides good training in all aspects. I've moved around in all spheres of NIH. I would suggest to young researchers to come to NIH and do a post-doc. It has been a very good place to develop a career and to build a life," Evans said. ❖

Summer Institute on Aging Research 2005

The National Institute on Aging (NIA) announces the annual Summer Institute on Aging Research, a weeklong workshop for investigators new to aging research, focused on current issues, research methodologies, and funding opportunities. The program includes consultations on the development of research interests. The 2005 Summer Institute will be held July 9-July 15 in Queenstown, MD. Support is available for travel and living expenses. Applications are due March 4, 2005. To increase the diversity of participants, minority investigators are strongly encouraged to apply. The applicant must be a U.S. citizen, non-citizen national, or permanent resident. There will be a special pre-conference to the Summer Institute on Aging Research for nurses July 7-8, focusing on clinical studies and clinical trials! See the application brochure for details.

For additional information and application form, contact: Office of the Director, Office of Special Populations, National Institute on Aging, National Institutes of Health, Building 31, Room 5C-35, 31 Center Drive MSC-2292, Bethesda, Maryland 20892-2292. Telephone: (301) 496-0765, Fax: (301) 496-2525, E-Mail: Hardent@nia.nih.gov or see the "What's New" section of the NIA Web Page: http://www.nia.nih.gov. ❖

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